

What is claimed is:

1. A method of preparing and handling protein samples for x-ray crystallography studies of protein crystals in the samples, comprising:

providing a capillary tube having a sidewall and open ends;

introducing plural fluid segments into the capillary tube;

5 closing the ends of the capillary tube to seal the tube; and

viewing and evaluating the fluid segments while they are in the sealed tube.

2. The method of claim 1, wherein said capillary tube is a plastic tube.

3. The method of claim 2, wherein the plastic tube is constructed of a plastic that will allow the contents of the tube to be viewed by x-raying the tube.

4. The method claim 1, wherein the fluid segments include a pair of contiguous fluid segments.

5. The method of claim 1, wherein the fluid segments include a pair of axially spaced fluid segments separated by an air gap.

6. The method of claim 1, comprising closing the ends of the capillary tube by heating and pinching the sidewall of the tube at the ends of the tube.

7. The method of claim 1, comprising closing the ends of the capillary tube by use of closure members that engage the ends of the capillary tube and close the ends of the capillary tube.

8. The method of claim 8, comprising using end closures in the form of caps that slip over the ends of the capillary tube.

9. The method of claim 1, comprising introducing the fluid segments in the capillary tube by injecting them in through a first end of the tube.

10. The method of claim 9, comprising subjecting the second end of the tube to a vacuum during injection of the fluid segments into the first end of the tube.

11. The method of claim 10, comprising providing a chuck connected to the vacuum and an end adapted to receive the second end of the tube.

12. The method of claim 11, comprising sealing between the chuck and the end of the tube.

13. The method of claim 1, comprising introducing the fluid segments in the capillary tube by injecting them in through a first end of the tube, and providing plural ejectors, each ejecting a different fluid segment, and moving the first end of the tube into alignment with a first ejector, and operating the injector to introduce a fluid segment of its fluid into the first end of the tube, and then moving the first end of the tube into alignment with a second injector, and operating the second ejector to inject a fluid segment of its fluid into the first end of the tube.

14. The method of claim 13, comprising moving the capillary tube from injector to injector, into positions to receive successive injections from the injectors.

15. The method of claim 1, comprising storing the capillary tube and its contents after the ends of the tube are closed, and periodically evaluating the contents of the tube for crystal formation while in the tube.

16. The method of claim 15, comprising freezing the contents of the tube while it remains in the tube if the evaluation shows a desirable crystal growth in the contents of the tube.

17. The method of claim 16, comprising placing the tube into cold storage while its contents are frozen and storing it in the cold storage.

18. The method of claim 17, comprising removing the tube and its contents from cold storage and making a crystallography evaluation of the contents while it is in the tube and remained cold.

19. The method of claim 18, comprising x-raying the tube and its contents while the contents remain in the tube.

20. The method of claim 1, wherein the fluid segments are segments of different fluids.

21. The method of claim 20, wherein the fluid segments includes a pair of axially spaced fluid segments that are separated by an air gap.

22. The method of claim 21, comprising connecting the first end of the capillary tube with the source of vacuum and using these vacuums to pull moisture out from the samples before closing the ends of the capillary tube to seal the tube.

23. A method of preparing and handling a reagent sample, comprising:  
providing a capillary tube having a sidewall and open ends, introducing one or more fluid segments into one end of the capillary tube;  
closing the ends of the capillary tube to seal the tube; and  
viewing and evaluating the reagent sample while it is in the sealed tube.

5

24. The method of claim 23, comprising closing the ends of the capillary tube by heating and pinching the sidewall of the tube at the ends of the tube, to cause the sidewalls to fuse and close the ends of the tube.

25. The method of claim 24, comprising closing the ends of the capillary tube by use of closure members that engage the ends of the capillary tube and close the ends of the capillary tube.